
LIBRARY

FILEID**OTSCVTRDP

```
  OOOOOO    TTTTTTTTTT    SSSSSSSS    CCCCCCCC  VV      VV  TTTTTTTTTT  RRRRRRRR    DDDDDDDD    PPPPPPPP
  OOOOOO    TTTTTTTTTT    SSSSSSSS    CCCCCCCC  VV      VV  TTTTTTTTTT  RRRRRRRR    DDDDDDDD    PPPPPPPP
OO      OO      TT      SS          CC          VV      VV      TT      RR      RR  DD      DD  PP      PP
OO      OO      TT      SS          CC          VV      VV      TT      RR      RR  DD      DD  PP      PP
OO      OO      TT      SS          CC          VV      VV      TT      RR      RR  DD      DD  PP      PP
OO      OO      TT      SS          CC          VV      VV      TT      RR      RR  DD      DD  PP      PP
OO      OO      TT        SSSSSS    CC          VV      VV      TT      RRRRRRRR    DD      DD  PPPPPPPP
OO      OO      TT        SSSSSS    CC          VV      VV      TT      RRRRRRRR    DD      DD  PPPPPPPP
OO      OO      TT              SS  CC          VV      VV      TT      RR  RR      DD      DD  PP
OO      OO      TT              SS  CC          VV      VV      TT      RR  RR      DD      DD  PP
OO      OO      TT              SS  CC            VV  VV        TT      RR    RR    DD      DD  PP
OO      OO      TT              SS  CC            VV  VV        TT      RR    RR    DD      DD  PP
  OOOOOO        TT      SSSSSSSS      CCCCCCCC      VV          TT      RR      RR  DDDDDDDD    PP
  OOOOOO        TT      SSSSSSSS      CCCCCCCC      VV          TT      RR      RR  DDDDDDDD    PP

LL              IIIIII      SSSSSSSS
LL              IIIIII      SSSSSSSS
LL                II      SS
LL                II      SS
LL                II      SS
LL                II      SS
LL                II        SSSSSS
LL                II        SSSSSS
LL                II              SS
LL                II              SS
LL                II              SS
LL                II              SS
LLLLLLLLLL      IIIIII    SSSSSSSS
LLLLLLLLLL      IIIIII    SSSSSSSS
```

Table of contents

```
0000     1          .TITLE  OTS$CVTRDP_R9   Convert Rounded Double Floating to Packed
0000     2          .IDENT  /1-005/         ; File: OTSCVTRDP.MAR Edit: PLL1005
0000     3
0000     4 ;
0000     5 ;*****************************************************************************
0000     6 ;*                                                                           *
0000     7 ;*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                 *
0000     8 ;*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.                   *
0000     9 ;*  ALL RIGHTS RESERVED.                                                     *
0000    10 ;*                                                                           *
0000    11 ;*  THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED    *
0000    12 ;*  ONLY IN  ACCORDANCE WITH  THE  TERMS  OF  SUCH  LICENSE  AND WITH THE   *
0000    13 ;*  INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER    *
0000    14 ;*  COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY    *
0000    15 ;*  OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY    *
0000    16 ;*  TRANSFERRED.                                                             *
0000    17 ;*                                                                           *
0000    18 ;*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE    *
0000    19 ;*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT   *
0000    20 ;*  CORPORATION.                                                             *
0000    21 ;*                                                                           *
0000    22 ;*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS    *
0000    23 ;*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                  *
0000    24 ;*                                                                           *
0000    25 ;*                                                                           *
0000    26 ;*****************************************************************************
0000    27 ;
0000    28 ;
0000    29 ; FACILITY: LANGUAGE INDEPENDENT SUPPORT
0000    30 ;++
0000    31 ; ABSTRACT:
0000    32 ;       This module contains the routine that converts double floating
0000    33 ;       numbers to packed with rounding.
0000    34 ;
0000    35 ;
0000    36 ;--
0000    37 ;
0000    38 ; VERSION: 1
0000    39 ;
0000    40 ; HISTORY:
0000    41 ;
0000    42 ; AUTHOR:
0000    43 ;       Marty Jack, 14-Mar-1979
0000    44 ;
0000    45 ; MODIFIED BY:
0000    46 ;
0000    47 ;
0000    48 ;
```

```
0000     50          .SBTTL  HISTORY         ; Detailed Current Edit History
0000     51
0000     52
0000     53 ; Edit History for Version 1 of OTSCVTRDP
0000     54 ;
0000     55 ; 1-001 - Original.  MLJ 14-Mar-1979
0000     56 ; 1-002 - Make external references explicit. RKR 17-JULY-1979
0000     57 ; 1-003 - Change all references to FOR$CNV_OUT_E to OTS$CNVOUT
0000     58 ;         RKR  27-SEPT-79
0000     59 ; 1-004 - Cosmetic changes.  RKR 18-OCT-79
0000     60 ; 1-005 - Change source name to OTS$ and retain old entry point name. PLL 21-Jan-82
```

```
                        .SBTTL  DECLARATIONS

;
; INCLUDE FILES:
;
                        $DSCDEF

;
; EXTERNAL SYMBOLS:
;
                        .DSABL  GBL             ; Prevent undeclared symbols from being
                                                ; automatically global

                        .EXTRN  OTS$CNVOUT      ; E-format conversion
                        .EXTRN  LIB$STOP        ; Error halt
                        .EXTRN  OTS$_FATINTERR  ; Fatal internal error code
;

;
; MACROS:
;       NONE
;

;
; PSECT DECLARATIONS:
;
00000000                .PSECT  _OTS$CODE       PIC, SHR, LONG, EXE, NOWRT,-
                                                USR, CON, REL, LCL, RD

;
; EQUATED SYMBOLS:
;       NONE
;

;
; OWN STORAGE:
;       NONE
;
```

```
                                                N 3
0000    100          .SBTTL  OTS$CVTRDP_R9
0000    101
0000    102 ;++
0000    103 ; FUNCTIONAL DESCRIPTION:
0000    104 ;
0000    105 ;       Converts a double floating number to packed with rounding.
0000    106 ;
0000    107 ; CALLING SEQUENCE:
0000    108 ;
0000    109 ;       JSB OTS$CVTRDP_R9 (scale.rl.v, src.rd.r, dstlen.rl.v, dst.wp.r)
0000    110 ;
0000    111 ;       Arguments are passed in R6, R7, R8 and R9.
0000    112 ;
0000    113 ; INPUT PARAMETERS:
0000    114 ;
0000    115 ;       SCALE.rl.v              The power of ten by which the internal
0000    116 ;                               representation of the source must be
0000    117 ;                               multiplied to scale the same as the
0000    118 ;                               internal representation of the dest.
0000    119 ;       SRC.rd.r                The number to be converted
0000    120 ;       DSTLEN.rl.v             The number of digits in the destination
0000    121 ;
0000    122 ; IMPLICIT INPUTS:
0000    123 ;
0000    124 ;       All of the trap bits in the PSL are assumed off.
0000    125 ;
0000    126 ; OUTPUT PARAMETERS:
0000    127 ;
0000    128 ;       DST.wp.r                The place to store the converted number
0000    129 ;
0000    130 ; IMPLICIT OUTPUTS:
0000    131 ;
0000    132 ;       NONE
0000    133 ;
0000    134 ; FUNCTION VALUE:
0000    135 ;
0000    136 ;       1 = SUCCESS, 0 = FAILURE
0000    137 ;
0000    138 ; SIDE EFFECTS:
0000    139 ;
0000    140 ;       Destroys registers R0 through R9.
0000    141 ;
0000    142 ;--
0000    143
0000    144
0000    145 OTS$CVTRDP_R9::
0000    146 COB$CVTRDP_R9::
5E 30 C2 0000    147          SUBL2   #48,SP                  ; Allocate temp space
6E 67 70 0003    148          MOVD    (R7),(SP)               ; Get input number
0006    149 ;
0006    150 ; Make a descriptor for the temporary string.
0006    151 ;
08 AE 9F 0006    152          PUSHAB  8(SP)                   ; Address = space reserved
7E 01 90 0009    153          MOVB    #DSC$K_CLASS_S,-(SP)    ; Class = static
7E 0E 90 000C    154          MOVB    #DSC$K_DTYPE_T,-(SP)    ; Data type = ASCII string
7E 26 B0 000F    155          MOVW    #38,-(SP)               ; Length in bytes
0012    156 ;
```

```
                                0012   157 ; Call OTS$CNVOUT.
                                0012   158 ;
                          1F    DD 0012   159         PUSHL   #31                     ; Digits in fraction
                       04 AE    9F 0014   160         PUSHAB  4(SP)                   ; Output string descriptor
                       10 AE    9F 0017   161         PUSHAB  16(SP)                  ; Number to convert
          00000000'GF    03    FB 001A   162         CALLS   #3,G^OTS$CNVOUT         ; Call conversion routine
                    29   50    E9 0021   163         BLBC    R0,20$                  ; Should never fail
                                0024   164 ;
                                0024   165 ; Convert the exponent and correct for scale factor.
                                0024   166 ;
     6E   02    33 AE    02    09 0024   167         CVTSP   #2,51(SP),#2,(SP)       ; Make packed exponent
             50    6E    02    36 002A   168         CVTPL   #2,(SP),R0              ; Make longword exponent
             56    E1 A640    9E 002E   169         MOVAB   -31(R6)[R0],R6          ; Correct for fraction size and scale
                                0033   170 ;
                                0033   171 ; Convert the fraction to packed.
                                0033   172 ;
          12 AE    10 AE    90 0033   173         MOVB    16(SP),18(SP)           ; Move sign over "."
     6E   1F    12 AE    1F    09 0038   174         CVTSP   #31,18(SP),#31,(SP)     ; Make packed fraction
69   58   05    6E    1F    56    F8 003E   175         ASHP    R6,#31,(SP),#5,R8,(R9)  ; Scale to destination
                                0045   176                                         ;     (also clears R0)
                          02    1D 0045   177         BVS     10$                     ; Branch if overflowed
                          50    D6 0047   178         INCL    R0                      ; Indicate success, R0 = 1
                       5E   38    C0 0049   179 10$:    ADDL2   #56,SP                  ; Delete stack temps
                                05 004C   180         RSB
                                004D   181 ;
                                004D   182 ; Come here on failure of OTS$CNVOUT.  This should never happen.
                                004D   183 ;
               00000000'8F    DD 004D   184 20$:    PUSHL   #OTS$_FATINTERR         ; OTS fatal error message
          00000000'GF    01    FB 0053   185         CALLS   #1,G^LIB$STOP           ; Signal and don't return
                                005A   186 ;
                                005A   187         .END
```

```
COB$CVTRDP_R9                   00000000 RG    02
DSC$K_CLASS_S                 = 00000001
DSC$K_DTYPE_T                 = 0000000E
LIB$STOP                        ********   X   00
OTS$CNVOUT                      ********   X   00
OTS$CVTRDP_R9                   00000000 RG    02
OTS$_FATINTERR                  ********   X   00
```

Psect synopsis

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
ABS	00000000 (0.)	01 (1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
_OTS$CODE	0000005A (90.)	02 (2.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	31	00:00:00.03	00:00:02.10
Command processing	120	00:00:00.34	00:00:03.07
Pass 1	135	00:00:01.15	00:00:06.70
Symbol table sort	0	00:00:00.11	00:00:00.98
Pass 2	52	00:00:00.34	00:00:03.57
Symbol table output	3	00:00:00.01	00:00:00.02
Psect synopsis output	2	00:00:00.01	00:00:00.01
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	345	00:00:02.00	00:00:16.46

```
The working set limit was 1050 pages.
8392 bytes (17 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 136 non-local and 2 local symbols.
187 source lines were read in Pass 1, producing 10 object records in Pass 2.
8 pages of virtual memory were used to define 7 macros.
```

Macro library statistics

Macro library name	Macros defined
_255DUA28:[SYSLIB]STARLET.MLB;2	4

```
190 GETS were required to define 4 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS$:OTSCVTRDP/OBJ=OBJ$:OTSCVTRDP MSRC$:OTSCVTRDP/UPDATE=(ENH$:OTSCVTRDP)
```

OTSCVTPD LIS

OTSCVTTF LIS

OTSCVTRFP LIS

OTSCVTRT LIS

OTSCVTTOL LIS

OTSCVTPG LIS

OTSCVTTR LIS

OTSCVTRHP LIS

OTSLINKAG LIS

OTSCVTRDP LIS

OTSCVTTIL LIS

OTSCVTTLL LIS

OTSCVTPF LIS

OTSCVTRGP LIS

OTSMOVE LIS

OTSMSG LIS

OTSCVTPH LIS

OTSLUN LIS